United States Patent [19]

Wasmer et al.

[11] **Patent Number: 5,005,069**

[45] **Date of Patent: Apr. 2, 1991**

[54] **RECTIFIER AND METHOD**

[75] Inventors: **William D. Wasmer**, Fountain Hills; **Peter J. Gillespie**; **James G. Lippmann**, both of Mesa; **Hiep M. Le**, Phoenix, all of Ariz.

[73] Assignee: **Motorola Inc.**, Schaumburg, Ill.

[21] Appl. No.: **516,656**

[22] Filed: **Apr. 30, 1990**

[51] **Int. Cl.**[5] **H01L 23/28**; H01L 23/02; H01L 23/12; H01L 23/42

[52] **U.S. Cl.** **357/72**; 357/74; 357/76; 357/79

[58] **Field of Search** 357/68, 72, 77, 79, 357/76

[56] **References Cited**

U.S. PATENT DOCUMENTS

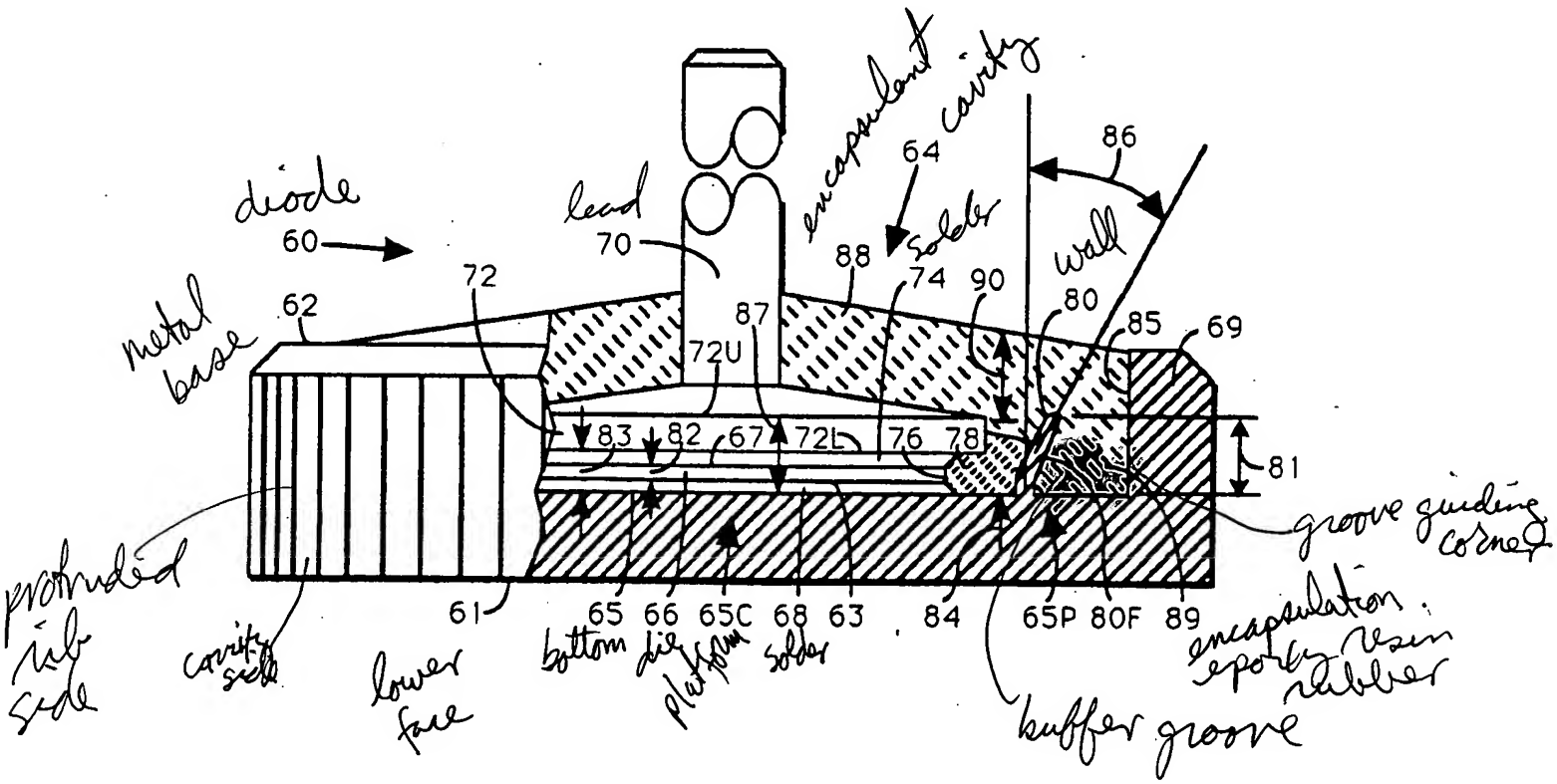
3,513,362	5/1970	Yamamoto	357/74
3,717,523	2/1973	Dunsche	156/69
3,743,896	7/1973	Weiske et al.	357/74
4,303,935	12/1981	Ragaly	357/76
4,314,271	2/1982	Heyke et al.	357/76
4,498,096	2/1985	Addie et al.	357/67
4,532,539	7/1985	Friszer	357/81

Primary Examiner—Rolf Hille
Assistant Examiner—D. Ostrowski
Attorney, Agent, or Firm—Robert M. Handy

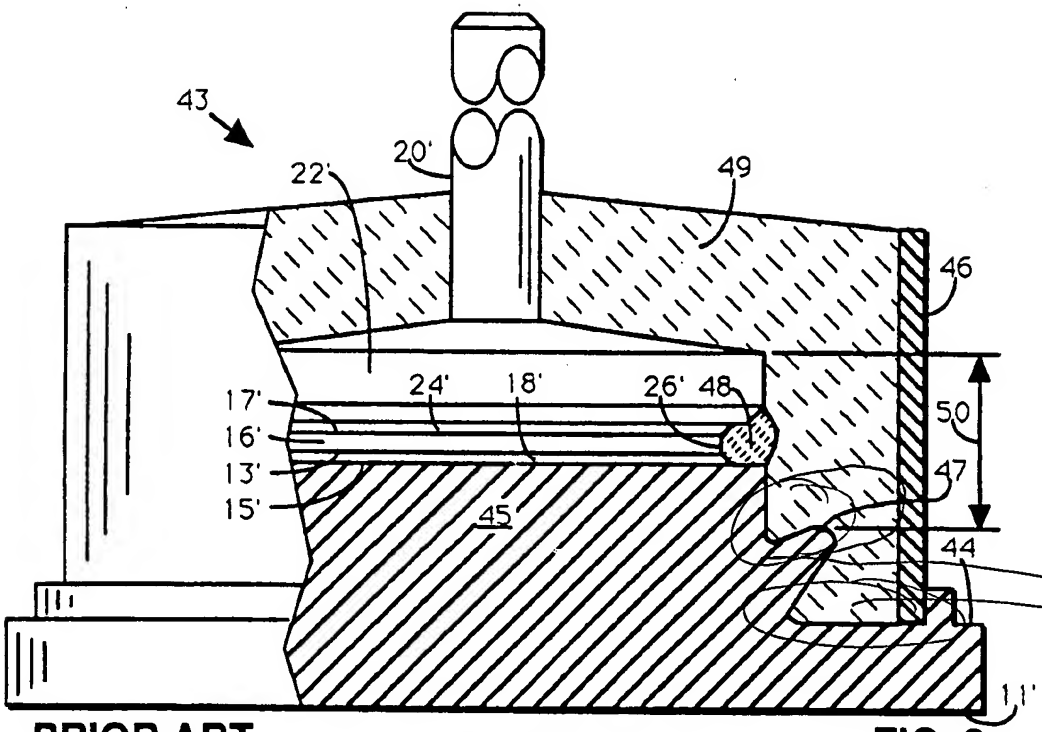
[57] **ABSTRACT**

A rectifier (60) is formedf by soldering a diode chip (66) in a cavity (64) in a metal base (62) having a metal sidewall (69), soldering the head (72) of an axial lead (70) to the chip (66), and filling the cavity (64) with an encapsulation (88). An outward leaning partition (80) is provided in the cavity (64) around and at about the same elevation as the chip (66). The encapsulation (88) covers the lead head (72) and the partition (80), and fills the space between the partition (80) and the base sidewall (69). This locks all the parts together, giving improved reliability and lead stiffnes at low cost.

10 Claims, 2 Drawing Sheets



78 – silicone rubber, col. 5, L 26-27



PRIOR ART FIG. 3

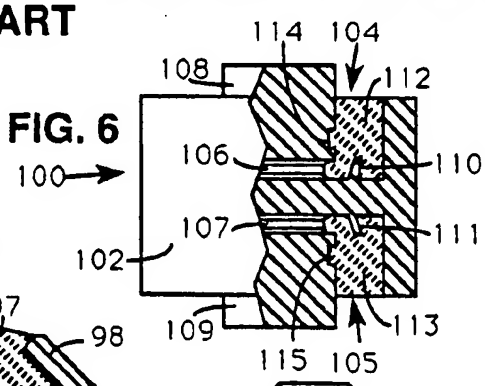


FIG. 6

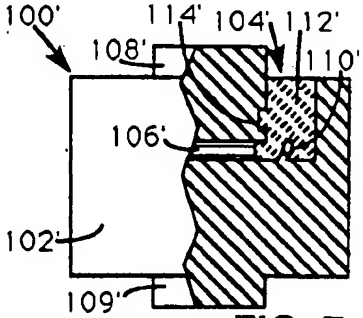


FIG. 7

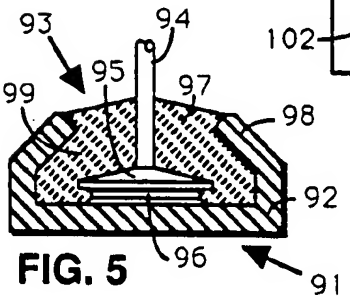


FIG. 5

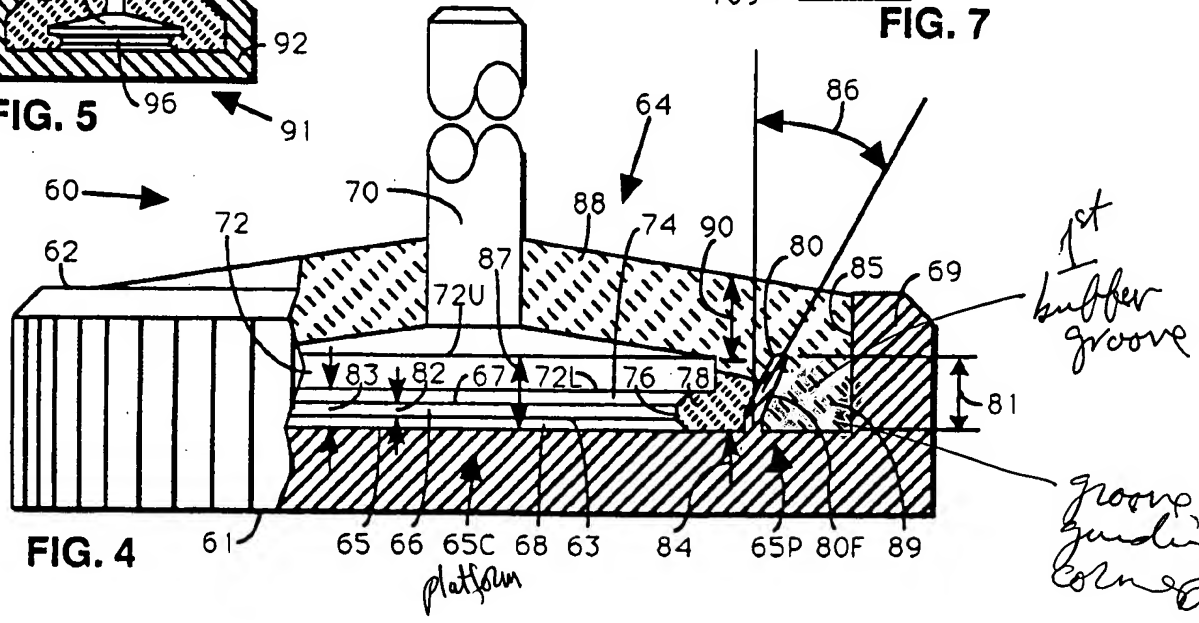


FIG. 4